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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,242	02/06/2001	Matt Beaumont	07319/096001	4078

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EXAMINER

LAVARIAS, ARNEL C

ART UNIT PAPER NUMBER

2872

DATE MAILED: 10/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/778,242

Applicant(s)

BEAUMONT, MATT

Examiner

Arnel C. Lavarias

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4 and 6-33 is/are pending in the application.
- 4a) Of the above claim(s) 4,6 and 9-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,7 and 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendments to Claim 1 in the submission dated 8/15/05 are acknowledged and accepted.

### ***Response to Arguments***

2. The Applicant's arguments, see in particular Page 14 of Applicant's remarks, filed 8/15/05, with respect to the rejection(s) of Claim(s) 1 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejections in Sections 8-11 of the Office Action dated 4/14/05 have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Bornhorst et al. (U.S. Patent No. 5282121).
3. Claims 1-2, 7-8 are now rejected as follows.

### ***Claim Objections***

4. Claims 7-8 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In this instant case, Claim 7 is dependent on cancelled Claim 5. Claim 8 is dependent on Claim 7, and hence inherits

the deficiencies of Claim 7. For purposes of examination, the Examiner has assumed that Claim 7 is meant to depend on Claim 1.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bornhorst et al. (U.S. Patent No. 5282121), in view of Katagiri '724 (U.S. Patent No. 6359724), of record, and Christie, Jr. et al. (U.S. Patent No. 4093991), of record.

Bornhorst et al. discloses an apparatus (See Figures 7-9) comprising a first unit (See any of 220A, 22B, 220C in Figure 7, Figures 8-9) which comprises an optical device including an optical filter having characteristics that vary across a gradient axis thereof; and a second unit (See any of 220A, 22B, 220C in Figure 7, Figures 8-9) which comprises an optical device including an optical filter having characteristics that vary across a gradient axis thereof; and a controlling console (See 203 in Figure 7; col. 13, line 39-col. 15, line 41) which produces color data for both the first unit and the second unit which causes both the first unit and the second unit to each produce one of specified color which causes the optical filter in the first unit to move to a first position representative of the color, and causes the optical filter in the second unit to go to a second position different from the first position, but representative of the same color. Bornhorst et al.

additionally discloses the apparatus further including an optical source (See 200 in Figure 7), producing optical energy along an optical axis thereof, the optical axis intersecting the gradient axis of the optical filter. Bornhorst et al. does not explicitly disclose both the first unit and the second unit each also including a memory unit, storing calibration data for the specific optical filter, which calibration data relates to optical characteristics which are individual to the specific optical filter in the optical device, and which affects the way the optical filter is used; a filter moving element which move the filter to change a position of the gradient axis that intersects the optical axis and thereby change a characteristic of filtering, wherein the filter moving element is responsive to the calibration data; and the filter moving element including a motor, and servo electronics driving the motor, the servo electronics including a memory table which includes a list of specified colors, and positions for the specified colors, and wherein the positions include the calibration data. However, Katagiri '724 discloses an apparatus (See for example Figures 1, 2, 4, 6, 13, 14A, 14B, 15), comprising an optical device (See 3 in Figure 1; 90, 110 in Figure 13) including an optical filter having characteristics that vary across a gradient axis thereof (See 31 in Figure 4; 40 in Figure 5; Figures 14A, 14B); and a memory unit (See 10 in Figure 1), storing calibration data for the specific optical filter, which calibration data relates to optical characteristics which are individual to the specific optical filter in said optical device, and which affects the way said optical filter is used (See for example Figure 6; col. 15, line 38-col. 16, line 18; col. 24, lines 20-40; col. 26, lines 42-62). Katagiri '724 also discloses the apparatus further comprising a filter moving element (See 20 in Figure 4), which moves said filter to change a position of the

gradient axis that intersects said optical axis and thereby change a characteristic of filtering, wherein said filter moving element is responsive to said calibration data (See col. 16, lines 19-65). Katagiri '724 also discloses the filter moving element including a motor (See 20 in Figure 4), and servo electronics driving the motor (See 8(9) and 32a in Figure 4), said servo electronics including a memory table which includes a list of specified infrared wavelengths, and positions for the specified infrared wavelengths, and said positions include said calibration data (See col. 16, lines 19-65). Katagiri '724 further discloses the apparatus further comprising an optical source (See 1 in Figure 1; Figure 4), producing optical energy along an optical axis thereof, said optical axis intersecting said gradient axis of said optical filter (See intersection of incident light and filter 31 in Figure 4). Additionally, Christie, Jr. et al. teaches an optical apparatus utilizing a calibrated variable circular interference filter (See for example Figures 1, 3, 8A-B), wherein the variable circular interference filter operates in the visible wavelength range (approximately 400-710 nm) and is calibrated by correlating the bandpass centroid versus angular position of the filter for each particular wavelength of interest. This calibration data is then stored in memory, and is utilized by the various instrument circuitries to position the filter at the appropriate angular positions to provide the corresponding wavelength or color filtering (See col. 6, lines 1-27; col. 11, line 24-col. 12, line 66). It is noted that although Christie, Jr. et al. does not specifically disclose correlating color with angular position, wavelengths in the visible range of the spectrum are inherently correlated with color. Thus, one may easily substitute the corresponding color for the appropriate wavelength in the calibration data for wavelengths in the visible

range of the spectrum. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the first unit and the second unit of the apparatus of Bornhorst et al. each also include a memory unit, storing calibration data for the specific optical filter, which calibration data relates to optical characteristics which are individual to the specific optical filter in the optical device, and which affects the way the optical filter is used; a filter moving element which move the filter to change a position of the gradient axis that intersects the optical axis and thereby change a characteristic of filtering, wherein the filter moving element is responsive to the calibration data; and the filter moving element including a motor, and servo electronics driving the motor, the servo electronics including a memory table which includes a list of specified colors, and positions for the specified colors, and wherein the positions include the calibration data, as taught by both Katagiri '724 and Christie, Jr. et al., to 1) simplify control and automation of the various elements in the apparatus, allowing for faster operation, and to 2) provide greater filter tunability by extending the wavelength range of operation of the optical system into the visible wavelength region.

7. Claims 7-8, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Bornhorst et al. in view of Katagiri '724 and Christie, Jr. et al. as applied to Claim 1 above, and further in view of So (U.S. Patent No. 5729347), of record.

Bornhorst et al. in view of Katagiri '724 and Christie, Jr. et al. discloses the invention as set forth above in Claim 1, except for the calibration data including a table of points indicating a 50% position in a cut on curve instead of center wavelengths. However, So teaches an optical wavelength measurement system for a dielectric interference filter (See

for example Figures 3-5) wherein transmission data from the interference filter is measured and stored as calibration data in, for example, a look up table in computer memory (See col. 3, line 62-col. 6, line 65). It is noted that although all wavelength positions in the transmission data are stored (See for example Figure 4), choosing the wavelength position to be a 50% position in the transmission data to represent a particular interference filter is an obvious variant since all the positions in the transmission data is stored and any one of these positions may be used to represent the interference filter. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the calibration data include a table of points indicating a 50% position in a cut on curve, as taught by So, in the apparatus as disclosed by Bornhorst et al. in view of Katagiri '724 and Christie, Jr. et al. One would have been motivated to do this to provide higher accuracy wavelength value, as well as provide an appropriate and unique 'label', 'name', or 'identifier' for the interference filters used in the apparatus.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within



Art Unit: 2872

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arnel C. Lavarias  
10/20/05



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